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S. D.—74. [This leaflet is distributed only with the seed to which it relates.]

United States Department of Agriculture,

BUREAU OF PLANT INDUSTRY,

New and Rare Seed Distribution,

WASHINGTON, D. C.

SUDAN GRASS.

OBJECT OF THE DISTRIBUTION.—The distribution of new and rare seeds has for its object the dissemination of new and rare crops, improved strains of staple crops, and high-grade seed of crops new to sections where the data of the Department indicate such crops to be of considerable promise. Each package contains a sufficient quantity for a preliminary trial, and where it is at all practicable the recipient is urged to use the seed for the production of stocks for future plantings. It is believed that if this practice is followed consistently it will result in a material improvement in the crops of the country.

Please make a full report on the inclosed blank regarding the results obtained with the seed.

HISTORY.

Sudan grass (*Andropogon sorghum* var.) is an annual belonging to the sorghum family. It was obtained from Khartum, Sudan, in 1909, as the result of a search for the natural forms of *Andropogon* intermediate between the cultivated sorghums and Johnson grass. In leaf, stem, and seed characters Sudan grass resembles Johnson grass very closely, but it lacks the underground stems, or rootstocks, which make Johnson grass difficult to eradicate. In root characters Sudan grass is more like the sorghums.

DESCRIPTION.

When planted in rows and cultivated on fairly rich soil, it grows to a height of 7 to 9 feet and has stems one-fourth of an inch in diameter. Broadcasted it rarely exceeds 3 to 5 feet in height and the stems are much finer, one-eighth of an inch or less in diameter. The seed head is loose and open, like that of Johnson grass. The hulls, or glumes, are awned when in flower and often purplish in color at that time. When ripe there are both straw-colored and black seeds, and most of the awns are broken off in thrashing. The seed itself when thrashed closely resembles Johnson grass seed, except that it is larger, and well-matured seed has a greater percentage of hulled seed in it. In general, however, it can only be distinguished from Johnson grass seed by the close scrutiny of a seed expert, and therein lies, perhaps, the greatest danger in the use of Sudan grass by the American farmer. Unscrupulous seedsmen will find it easy to adulterate it with Johnson grass seed. This danger, however, will be present for only a few years, as it is much easier and cheaper to produce Sudan grass seed than that of Johnson grass. The danger of

the future will come about in the use of Sudan grass seed produced on land infested with Johnson grass, thus bringing about a natural admixture of the seed.

CLIMATE AND SOIL REQUIREMENTS.

Sudan grass is not particular about the soil, but it does best in a fairly rich clay loam. In sandy or poor soils the growth is rather weak and yields low. Belonging to the sorghum family, it shares with the rest of this group the preference for a warm growing season. It will stand slight frosts, but continued cool weather interferes with its normal development, and this fact prevents its success in high altitudes. It is fully as drought resistant as the ordinary cultivated sorghums, and when grown in rows and given similar cultivation it can be relied upon to produce a crop of hay with very little rainfall. It has a short growing season, maturing for hay in about 75 or 80 days and for seed in from 100 to 106 days from seeding time if the weather is warm. This quality allows of its use as a catch crop throughout the Corn Belt and extends its territorial limit north in the Great Plains region almost to the Canadian boundary and a like distance in all other regions characterized by hot summers. Excessive humidity, such as is found in the Gulf coast region, is injurious to Sudan grass, because it induces red-spot and other diseases which make its growth unprofitable.

SEEDING.

Sudan grass should not be planted until the soil has become warm in the spring. Planting in cold soil only delays germination and dwarfs the early growth. It can be sown any time during the summer as a catch crop, so long as 70 to 80 days intervene before the date of the first expected frost. Sudan grass can be sown in rows 18 to 42 inches apart and cultivated like corn, or it can be drilled in with a grain drill or sown broadcast by hand. In the semiarid sections it is much more profitable to seed it in rows and cultivate, and even in the humid regions a small amount of cultivation appears to give added vigor to the plants. The rows should be as close together as the tools available for cultivation will permit. Where sugar-beet cultivators are at hand 18 to 24 inch rows are best, but in most cases the farmer will find it more convenient to place the rows 36 to 42 inches apart, so that he can use his corn cultivator. Seeded in rows 36 to 42 inches apart, 2 to 3 pounds of good seed to an acre are sufficient. In rows 18 to 24 inches apart, 4 to 6 pounds, and drilled or broadcast 16 to 24 pounds per acre are required, according to the rainfall.

HARVESTING.

Sudan grass is easy to cut with a mower and cures readily, so that the haying process is much the same as that of millet or any

other hay grass. Where it is harvested for seed, an ordinary grain binder is best suited for handling the crop. When hay is desired, it is best to cut Sudan grass after it has fully headed, but it can be harvested somewhat earlier or later than this with no great loss in feeding value. After cutting, it renews its growth promptly when moisture conditions are favorable, and in about 40 to 50 days another cutting is ready. The grass stools abundantly after the first cutting, and the second and third cuttings are very fine stemmed. In 1912 four cuttings were secured at Chillicothe, Tex. Ordinarily two or three cuttings may be expected from the central United States southward, and one cutting north of the middle.

UTILIZATION.

Sudan grass makes a nutritious and palatable hay, relished alike by cattle, horses, and sheep. Yields of 2 to 4 tons an acre of cured hay are obtained without irrigation, and under irrigation 6 to 8 tons per acre are common. In feeding value Sudan grass hay is equal to timothy, millet, and Johnson grass hay. It is claimed that horses can do more work in the hot summer months when fed Sudan grass than if fed alfalfa hay.

As a summer pasture no crop other than alfalfa equals it in carrying capacity, and animals pastured on Sudan grass do not bloat. There is some slight danger of prussic-acid poisoning in pasturing Sudan grass, but this can be avoided if care is used to keep the stock off Sudan grass that has been injured by drought or frost.

Sudan grass is well adapted also for use as a soiling crop, but is not used much in this way because of the labor expense. It makes a good quality of silage but yields less than corn or sorghum.

REMARKS.

Sudan grass matures for hay in about the same length of time as millet and the yields are equal or better, especially where several cuttings can be secured. The quality of the hay is much superior to that of millet, and it is therefore recommended as a substitute for millet as a catch crop.

Seed production is profitable only in favorable localities.

Because Sudan grass crosses quite readily with the cultivated sorghums it is necessary to rogue the seed fields in order to remove all sorghum crosses. When the field is to be used for hay the presence of such crosses is not of any great importance.

Approved:

WM. A. TAYLOR,
Chief of Bureau.

AUGUST 8, 1922.

